CLAIMS

What is claimed is:

1. A method of resetting an electronic device comprising:

a) separating software operations associated with layer two of an International Standardization Organization Open Systems Interconnect (ISO/OSI) reference model from other layers in said ISO/OSI reference model, said electronic device implementing said software operations;

b) resetting said software operations in said layer two of said electronic device;

c) maintaining continuity for a communication session between said electronic device and other electronic devices coupled together through a network; and

d) recovering execution of said software operations at said layer two before said continuity of said communication session is terminated.

2. The method of Claim 1, wherein a) further comprises:

a1) separating a data plane and a control plane in said electronic device, said data plane being associated with said layer two, and said control plane being associated with layers above said layer two of said ISO/OSI reference model.

3. The method of Claim 1, wherein c) further comprises:

c1) maintaining continuity at layer one of said ISO/OSI reference model; and

c2) maintaining continuity at layers above said second layer of said ISO/OSI reference model.

4. The method of Claim 1, wherein b) further comprises:

b1) pre-loading new software implementing said software operations to a first memory location of said electronic device; and

b2) loading a bootstrap code to a second memory location of said electronic device, said bootstrap code for loading said new software to a predetermined location, said predetermined location storing existing software implementing said software operations.

5. The method of Claim 4, wherein d) further comprises:

d1) executing said bootstrap code by moving a program counter of said electronic device to a first beginning instruction of said bootstrap code to overwrite said existing software at said predetermined location with said new software; and

d2) executing said new software by moving said program counter to a second beginning instruction of said new software to initialize said new software.

6. The method of Claim 1, wherein b) further comprises:

b1) performing a minimal reset of hardware components associated with said layer two such that interruptions to an operating system of said electronic device are minimized.

7. The method of Claim 6, wherein at least one of said hardware components comprises a line card.

8. The method of Claim 1, wherein said network comprises the Internet.

9. The method of Claim 1, wherein said electronic device comprises a network device.

10. A method of resetting an electronic device comprising:

a) separating a data plane and a control plane in said electronic device, said data plane and said control plane for controlling communication in a network, said data plane associated with layer two of an International Standardization Organization Open Systems Interconnect (ISO/OSI) reference model;

b) resetting software operations in said data plane;

c) maintaining continuity in said communication at layer one of said ISO/OSI reference model;

d) maintaining continuity in said communication at layers above said layer two; and

e) recovering execution of said software operations before said continuity is terminated at said control plane.

11. The method of Claim 10, wherein b) further comprises:

b1) pre-loading new software implementing said software operations to a first memory location of said electronic device; and

b2) loading a bootstrap code to a second memory location of said electronic device, said bootstrap code for loading said new software to a predetermined location storing existing software implementing said software operations.

12. The method of Claim 11, wherein d) further comprises:

d1) moving a program counter of said electronic device to a first beginning instruction of said bootstrap code for executing said bootstrap code to overwrite said existing software at said predetermined location with said new software; and

d2) executing said new software by moving said program counter to a second beginning instruction of said new software to initialize said new software.

13. The method of Claim 11, wherein b1) further comprises:

upgrading said software operations that are implemented within said new software.

14. The method of Claim 11, wherein b1) further comprises:

reloading said software operations that are implemented within said new software.

15. The method of Claim 10, wherein b) further comprises:

b1) performing a minimal reset of hardware components associated with said data plane such that interruptions to an operating system of said electronic device are minimized.

16. The method of Claim 15, wherein d) further comprises:

resuming operations of said hardware components.

17. The method of Claim 10, wherein said electronic device comprises a network device.

18. A computer system comprising:

a processor; and

a computer readable memory coupled to said processor and containing program instructions that, when executed, implement a method of resetting an electronic device comprising:

a) separating software operations associated with layer two of an International Standardization Organization Open Systems Interconnect (ISO/OSI) reference model from other layers in said ISO/OSI reference model, said electronic device implementing said software operations;

b) resetting said software operations in said layer two of said electronic device;

c) maintaining continuity for a communication session between said electronic device and other electronic devices coupled together through a network; and

d) recovering execution of said software operations at said layer two before said continuity of said communication session is terminated.

19. The computer system of Claim 18, wherein a) in said method further comprises:

a1) separating a data plane and a control plane in said electronic device, said data plane being associated with said layer two, and said control plane being associated with layers above said layer two of said ISO/OSI reference model.

20. The computer system of Claim 18, wherein c) in said method further comprises:

c1) maintaining continuity at layer one of said ISO/OSI reference model; and

c2) maintaining continuity at layers above said second layer of said ISO/OSI reference model.

21. The computer system of Claim 18, wherein b) in said method further comprises:

b1) pre-loading new software implementing said software operations to a first memory location of said electronic device; and

b2) loading a bootstrap code to a second memory location of said electronic device, said bootstrap code for loading said new software to a predetermined location, said predetermined location storing existing software implementing said software operations.

22. The computer system of Claim 21, wherein d) in said method further comprises:

d1) executing said bootstrap code by moving a program counter of said electronic device to a first beginning instruction of said bootstrap code to overwrite said existing software at said predetermined location with said new software; and

d2) executing said new software by moving said program counter to a second beginning instruction of said new software to initialize said new software.

23. The computer system of Claim 18, wherein b) in said method further comprises:

b1) performing a minimal reset of hardware components associated with said layer two such that interruptions to an operating system of said electronic device are minimized.

24. The computer system of Claim 23, wherein at least one of said hardware components comprises a line card.

25. The computer system of Claim 18, wherein said network comprises the Internet.

26. The computer system of Claim 18, wherein said electronic device comprises a network device.

27. A system for resetting an electronic device comprising:

means for separating software operations associated with layer two of an International Standardization Organization Open Systems Interconnect (ISO/OSI) reference model from other layers in said ISO/OSI reference model, said electronic device implementing said software operations;

means for resetting said software operations in said layer two of said electronic device;

means for maintaining continuity for a communication session between said electronic device and other electronic devices coupled together through a network; and

means for recovering execution of said software operations at said layer two before said continuity of said communication session is terminated.

28. The system of Claim 27, wherein said means for separating software operations further comprises:

means for separating a data plane and a control plane in said electronic device, said data plane being associated with said layer two, and said control plane being associated with layers above said layer two of said ISO/OSI reference model.

29. The system of Claim 27, wherein said means for maintaining continuity further comprises:

means for maintaining continuity at layer one of said ISO/OSI reference model; and

means for maintaining continuity at layers above said second layer of said ISO/OSI reference model.

30. The system of Claim 27, wherein said means for resetting said software operations further comprises:

means for pre-loading new software implementing said software operations to a first memory location of said electronic device; and

means for loading a bootstrap code to a second memory location of said electronic device, said bootstrap code for loading said new software to a predetermined location, said predetermined location storing existing software implementing said software operations.

31. The system of Claim 30, wherein said means for recovering execution further comprises:

means for executing said bootstrap code by moving a program counter of said electronic device to a first beginning instruction of said bootstrap code to overwrite said existing software at said predetermined location with said new software; and

means for executing said new software by moving said program counter to a second beginning instruction of said new software to initialize said new software.

32. The system of Claim 27, wherein said resetting said software operations further comprises:

means for performing a minimal reset of hardware components associated with said layer two such that interruptions to an operating system of said electronic device are minimized.

33. The system of Claim 32, wherein at least one of said hardware components comprises a line card.

34. The system of Claim 27, wherein said network comprises the Internet.

35. The system of Claim 27, wherein said electronic device comprises a network device.

36. A computer-readable medium comprising computer-executable instructions for performing a method of resetting an electronic device comprising:

a) separating software operations associated with layer two of an International Standardization Organization Open Systems Interconnect (ISO/OSI) reference model from other layers in said ISO/OSI reference model, said electronic device implementing said software operations;

b) resetting said software operations in said layer two of said electronic device;

c) maintaining continuity for a communication session between said electronic device and other electronic devices coupled together through a network; and

d) recovering execution of said software operations at said layer two before said continuity of said communication session is terminated.

37. The computer-readable medium of Claim 36, wherein a) in said method further comprises:

a1) separating a data plane and a control plane in said electronic device, said data plane being associated with said layer two, and said control plane being associated with layers above said layer two of said ISO/OSI reference model.

38. The computer-readable medium of Claim 36, wherein c) in said method further comprises:

c1) maintaining continuity at layer one of said ISO/OSI reference model; and

c2) maintaining continuity at layers above said second layer of said ISO/OSI reference model.

39. The computer-readable medium of Claim 36, wherein b) in said method further comprises:

b1) pre-loading new software implementing said software operations to a first memory location of said electronic device; and

b2) loading a bootstrap code to a second memory location of said electronic device, said bootstrap code for loading said new software to a predetermined location, said predetermined location storing existing software implementing said software operations.

40. The computer-readable medium of Claim 39, wherein d) in said method further comprises:

d1) executing said bootstrap code by moving a program counter of said electronic device to a first beginning instruction of said bootstrap code to overwrite said existing software at said predetermined location with said new software; and

d2) executing said new software by moving said program counter to a second beginning instruction of said new software to initialize said new software.

41. The computer-readable medium of Claim 36, wherein b) in said method further comprises:

b1) performing a minimal reset of hardware components associated with said layer two such that interruptions to an operating system of said electronic device are minimized.

42. The computer-readable medium of Claim 41, wherein at least one of said hardware components comprises a line card.

43. The computer-readable medium of Claim 36, wherein said network comprises the Internet.

44. The computer-readable medium of Claim 36, wherein said electronic device comprises a network device.